



## Mono4-FLEX Specifications Sheet

- Use: Magnetic fastening for cable and conduit management on indoor and outdoor steel surfaces
  - Common steel surfaces
    - Water towers
    - Monopoles
    - Wind Turbines
- FLEX™ magnetic brackets allow the magnetic arms to pivot to a variety of surfaces without tooling (See page 4)
  - Flat
  - Convex (16" diameter or larger tubing)
  - Concave (36" or larger tubing)
  - Angled (see geometry for compatibility)
- Bracket body hosts multiple fastening options
  - Four (4) Snap-in/SnapStak® hanger locations, duplexing allowed within capacity
  - Six (6) 3/8" socket connections for conduit clamps, cable blocks, ground bars or cabinets
- Magnetic units: Twelve (12) magnet units of N42 rare-earth alloy composition. See calibrated testing matrix for yield-load values
- Material Specifications:
  - 13.7" L X 6.5" W X 1.8" H (See page 5)
  - Weight: 4.02 lbs
  - ASTM 304 Stainless Steel monolithic frame
  - Vibratory tumble finish
- Hoverbolt™ System allows bracket to be installed, adjusted and removed with command and control
- Spacing of bracket: Estech recommends a 5' on-center maximum spacing or observation of the cable manufacturer specification. In such case, the closer spacing will be the recommended value



### X & Y Axis Yield Definition

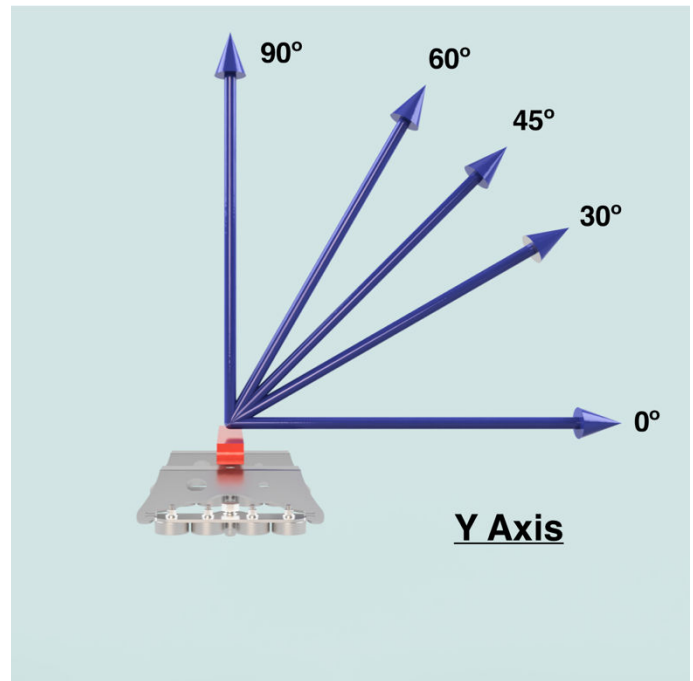
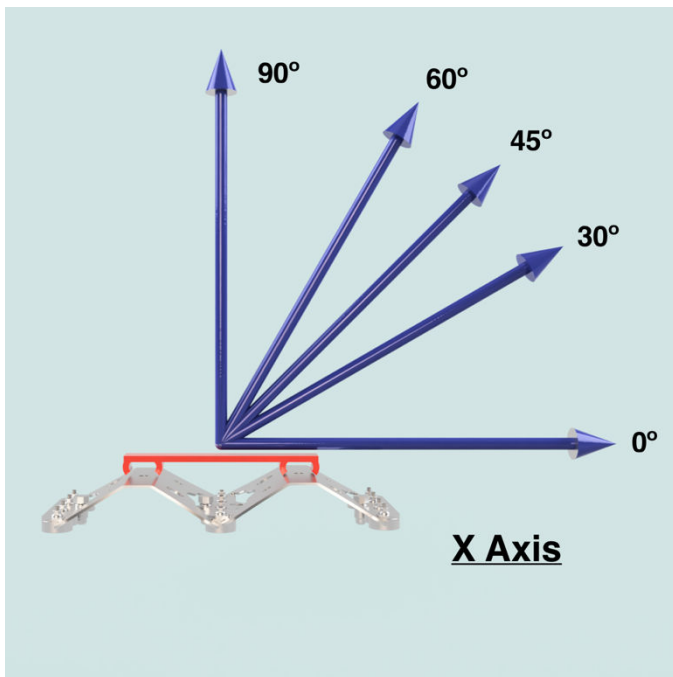
Magnetic force is tested to the yield condition of the bracket embodiment. For the purpose of the calibrated testing procedure, the yield point is defined as the average maximum tension force experienced which induces a deflection along the given axis of up to .25 inches parallel to the tested steel surface.

### Z Axis Yield Definition

The yield point is defined as the maximum tension force experienced at the vertical (90 degree / Z axis) pull of breakpoint experienced tested perpendicular to horizontal steel surface.

### Reporting

Results from these calibrated tension forces are aggregated into a spreadsheet with each procedure as the vertical column and the axis in the horizontal column. Please see below table for product testing of the Mono4-FLEX magnetic bracket. Video of all tests further record and confirm performance data. Please refer to Estech's Standardized Magnetic Testing Procedure Testing Program and Specifications document for further information.



**Table 1: Working Load Table – 2X Safety Factor Recommended by ESTECH**

Estech recommends a safety factor or 2X when the consumer load is compared to calibrated factory tested ultimate load data. This table below will aid in determining the correct magnetic bracket size for needed capacity. An on-center spacing of no more than 5 feet is specified on this magnetic bracket system.

	0° Angle	30 ° Angle	45 ° Angle	60 ° Angle	90 ° Angle
X-Axis	110 lbf	98 lbf	104 lbf	120 lbf	
Y-Axis	98 lbf	87.5 lbf	95 lbf	106 lbf	
Z-Axis					117.5 lbf

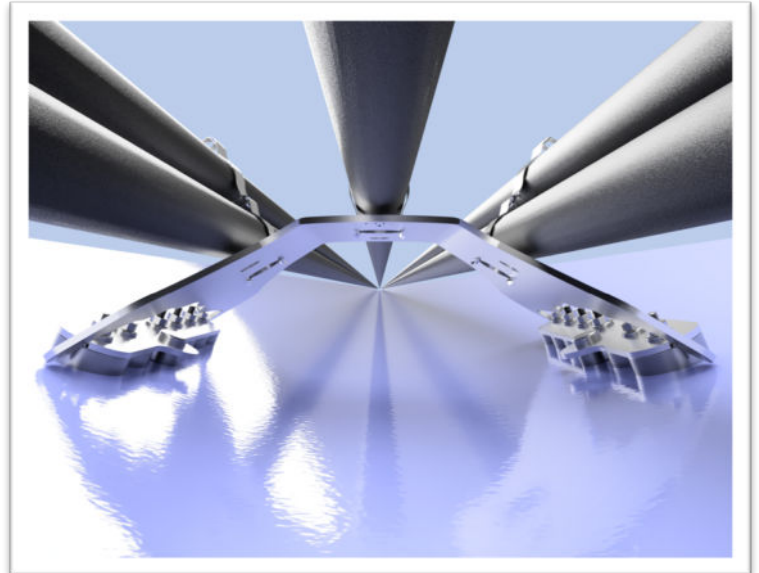
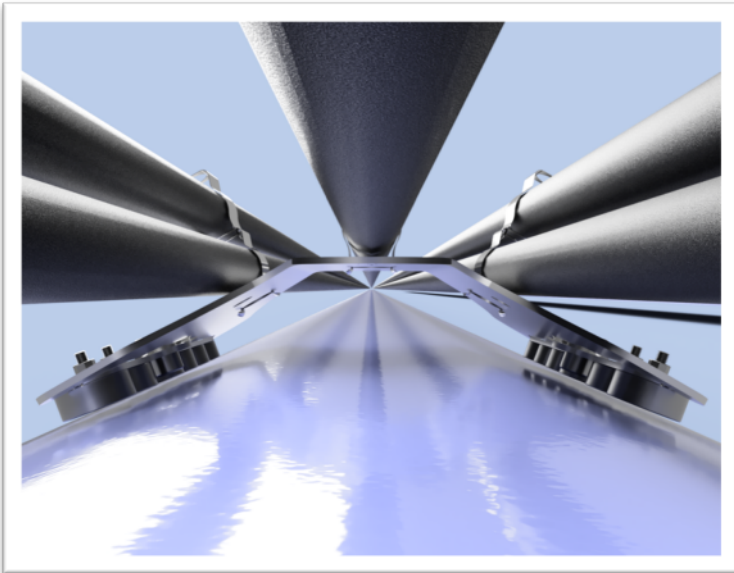
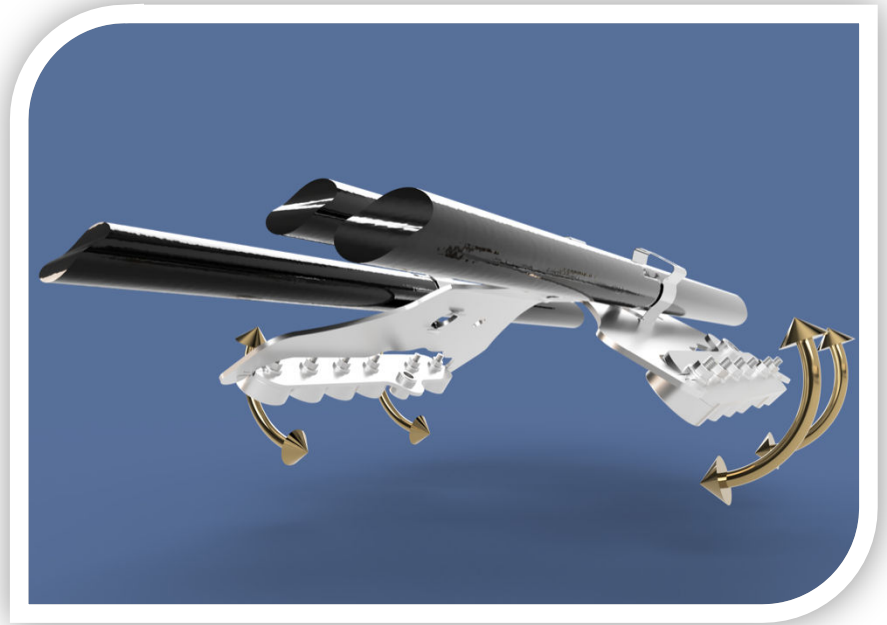
**Table 2: Working Load Table – Performance Data Testing by ESTECH**

This magnetic bracket has been factory tested in a calibrated condition. Many factors influence the magnetic performance in outdoor settings such as; steel type and thickness, temperature, moisture, thickness of coating systems, coefficient of friction of coating system and direction of force. Estech has used 1/4” mild steel with a 10-12 mil AWWA compliant coating system at 70° Fahrenheit average at all stated axis and variable angular directions of tensile pull force (lbf). Magnetic force improves with; thicker steel, ferrous metal, thinner coatings, rougher coatings, colder temperatures at dry conditions. Estech formulated this calibrated test standard to best model conditions commonly seen on water tower and similar outdoor settings. Note: these are ultimate loads. Highest forces at a maximum displacement of .25” were recorded and averaged. The results are located in the table below.

	0° Angle	30 ° Angle	45 ° Angle	60 ° Angle	90 ° Angle
X-Axis	220 lbf	196 lbf	208 lbf	240 lbf	
Y-Axis	196 lbf	175 lbf	190 lbf	212 lbf	
Z-Axis					235 lbf

## **FLEX™ Technology**

FLEX™ Technology allows Estech's Talon brackets to conform to a range of convex, concave, and flat surfaces without measurements. The magnetic pads are able to pivot to the tangency of the surface profile automatically during installation, supported by stainless steel "tendons" which allow the entire bracket body to be monolithically constructed. This compliant mechanism technology brings out the capability of lamina emergence and the strength of neodymium magnets.



Far above right: A depiction of the flexibility of the Flex™ Technology mechanism within a Talon3-FLEX.

Above left: An example of a Talon3-FLEX on a convex surface; note the position of the magnets.

Above right: An example of a Talon3-FLEX on a concave surface; note the position of the magnets.

Drawings below are available in a separate document upon request.

